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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,394	10/10/2000	Osamu Yamaguchi	KAW 20089-3	8495

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EXAMINER
SAVAGE, MATTHEW O

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/685,394	Applicant(s) YAMAGUCHI ET AL.
	Examiner Matthew O Savage	Art Unit 1723

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) *4,5,21-24 and 40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-20,25-39 and 41-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Applicant's election with traverse of the species shown in FIG. 1b and the subspecies including single component fibers with different melting points in Paper No. 8 is acknowledged. The traversal is on the ground(s) that :

1) the inventions must be independent and distinct as claimed;

2) there must be a serious burden on the examiner if restriction is required.

This is not found persuasive because:

1) the requirement for the inventions to be independent and distinct does not apply in an election of species requirement;

2) the examination of three species and two subspecies including various permutations thereof imposes a serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11, 35, 36, and 46 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to claims 11, 35, 36, 46, the specification fail to adequately disclose how to form a bonded filter including a precision layer composed of glass fiber.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 6-20, 25-39, and 41-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Concerning lines 10-11 of claim 1 and lines 9-10 of claim 38, it is unclear as to whether "said one or more layers of the non-woven fibrous agglomerate" refers to the "precision filtration layer".

Regarding claims 7, 8, 27-30, 43, "the ratio of a smallest diameter to a largest diameter of fibers in the non-woven fabric" lacks proper antecedent basis.

Regarding claims 42, "the ratio of a smallest diameter to a largest diameter of fibers in the non-woven fabric" lacks proper antecedent basis.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 9, 10, 12-20, 31-34, 37-39, 44, 45, 47-49, 53, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szczepanski et al in view of Pall et al.

With respect to claim 1, Szczepanski et al disclose a cylindrical filter (see FIG. 6) including at least two layers of a prefiltration layer 70 and a precision layer 69 disposed in the direction of filtration, each layer being formed with a non-woven fabric with the fibers being bonded to each other at their contact points (see lines 63-68 of col. 4), the diameter of the fibers in the precision layer being smaller than the diameter of the fibers the prefiltration layer. Szczepanski et al fail to specify the fibers of the prefiltration layer as becoming gradually smaller in the direction of filtration. Pall et al discloses the concept of providing a prefiltration layer disposed upstream of a precision filtration layer with the prefiltration layer having fibers that become gradually smaller in the direction of filtration (see example 11, columns 19-20) and suggests that such an arrangement provides high filtration efficiency. It would have been obvious to have modified the filter of Szczepanski et al so as to have included a prefiltration layer arranged as suggested by Pall et al in order to improve the filtration efficiency of the filter.

With respect to claim 38, Szczepanski et al disclose a cylindrical filter (see FIG. 6) including at least three layers of a prefiltration layer 70 and a precision layer 69, and a support layer 68 disposed in the direction of filtration, each layer being formed with a non-woven fabric with the fibers being bonded to each other at their contact points (see lines 63-68 of col. 4), the diameter of the fibers in the precision layer being smaller than the diameter of the fibers the prefiltration layer, and the fibers in the support layer being

larger than the fibers in the precision filtration layer and being bonded together (see lines 63-68 of col. 4). Szczepanski et al fail to specify the fibers of the prefiltration layer as becoming gradually smaller in the direction of filtration. Pall et al discloses the concept of providing a prefiltration layer disposed upstream of a precision filtration layer with the prefiltration layer having fibers that become gradually smaller in the direction of filtration (see example 11, columns 19-20) and suggests that such an arrangement provides high filtration efficiency. It would have been obvious to have modified the filter of Szczepanski et al so as to have included a prefiltration layer arranged as suggested by Pall et al in order to improve the filtration efficiency of the filter.

As to claims 2, 17, 18, 39, 49, Szczepanski et al disclose a prefiltration and precision layers formed of one of polyolefin and polyester fibers (see lines 7-13 of col. 5).

Concerning claims 3, 19, 20, Szczepanski et al disclose a prefiltration layer formed by a melt blow process (see FIG. 1).

Regarding claims 9, 14-16, 31, 32, 44, 48, Szczepanski et al in view of Pall et al fail to specify the recited void ratios, however, such a modification would have been obvious in order to optimize the filter for a particular application.

As to claims 10, 33, 34, 45, Szczepanski et al disclose a melt blow process for forming fibers of the precision filtration layer.

Concerning claim 12, Szczepanski et al disclose non woven fabrics that are different from one another (see lines 41-40 of col. 8).

Claims 13 and 47 recites a process step of making a filter of which carries no weight in an apparatus claim.

As to claim 37, Szczepanski et al disclose the recited support layer 68.

As to claims 53 and 54, Szczepanski et al disclose filter layers that are bonded together (see lines 63-68 of col. 4).

Claims 6-8, 25-30, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szczepanski et al in view of Pall et al as applied to claim 1, 12, 13, 38 above, and further in view of Barboza et al.

With respect to claims 6, 25, 26, 41, Szczepanski et al and Pall et al fail to specify the prefiltration layer as being a mixture of fibers having different melting points. Barboza et al discloses the concept of providing filtration layers formed of mixtures of fibers having different melting points inherently including a difference in melting point of 10 degrees C or more (see lines 41-65 of col. 7) and suggests that such an arrangement optimizes the filter for particular end-use applications. It would have been obvious to have modified the combination suggested by Szczepanski et al and Pall et al so as to have included fibers as suggested by Barboza et al in order to optimize the filter for a particular end-use application.

Regarding claims 7, 8, 27-30, 42, 43, Szczepanski et al and Pall et al fail to specify the layers as having fibers of different diameters. Barboza et al disclose a filter having layers formed of fibers with different diameters and suggests that the larger fibers provide structural support for the smaller fibers thereby preventing collapse of the

layers (see lines 8-23 of col. 7). It would have been obvious to have modified the combination suggested by Szczepanski et al and Pall et al so as to have included layers of fibers of different diameters as suggested by Barboza et al in order to provide filtration layers that were resistant to collapse. Barboza et al fails to specify the fiber diameter ratios recited in claims 7 and 8, however, such modifications would have been obvious in order to provide the degree of support for a particular application.

Claims 11, 35, 36, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szczepanski et al in view of Pall et al as applied to claim 1 and 38 above, and further in view of Miller et al.

With respect to claims 11, 35, 36, and 46, Szczepanski et al and Pall et al fail to specify a precision filter layer formed of glass fibers. Miller et al discloses the concept of providing a precision filter layer formed of glass (see example 1) and suggests that such an arrangement optimizes the filter for a particular filtering application. It would have been obvious to have modified the combination suggested by Szczepanski et al and Pall et al so as to have included a precision filter layer formed of glass fibers as suggested by Miller et al in order to optimize the filter for a particular application.

Claims 50 and 51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is 703-308-3854. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda W. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

M. Savage

Matthew O Savage
Primary Examiner
Art Unit 1723

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September 18, 2002